

USSR

UDC: 669.295:669.15-194.2

MOISEYEV V. N.

"Martensitic Conversion Upon Deformation in Titanium Alloys with Metastable Beta Phase"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, 1972, pp 18-23.

Abstract: This work studies the changes in mechanical properties and phase composition of the two titanium alloys VT14 and VT16 as functions of hardening temperature and degree of subsequent plastic deformation; the area of instability during plastic deformation of the beta phase in the binary alloys of titanium with Fe, Cr, Mo, V, Nb, Ta, Mn and alloys of titanium with Mn and Al; the influence of deformation temperature on the martensitic conversion of the metastable beta phase in VT16 titanium alloy. X-ray structural analysis established that the metastable  $\beta$  and  $\alpha''$  phases can be converted during plastic deformation. The great difference between the strength and yield points observed in titanium alloys hardened in the metastable beta phase is sharply decreased with increasing plastic deformation. Areas of existence of the mechanically unstable beta phase in binary titanium alloys with Mo, V, Nb, Ta, Fe and Cr were established (alloys containing up to 20% Mo, 20% V, 50% Nb, 50% Ta, 4% Fe and 12% Cr). The addition of aluminum to the alloys significantly

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MOISEYEV, V. N., Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, 1972, pp 18-23.

increases the tendency of the metastable beta phase toward decomposition upon deformation. Reducing the temperature from room temperature to  $-196^{\circ}\text{C}$  slightly decreases the tendency of the metastable beta phase toward conversion upon deformation.

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Heat Treatment

USSR

UDC: 669.295'71'293:620.17:621.78

MOISEYEV, V. N.

"Properties and Heat Treatment of Titanium-Niobium and Titanium-Niobium-Aluminum Alloys"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, Sept 71, no 9, pp 35-43

Abstract: The study concerns binary titanium alloys with 4, 9, 20, and 50% Nb as well as ternary titanium alloys with the same niobium contents and 3% Al. The impurity contents in the alloys were: 0.06-0.08% Fe; 0.07-0.09% Si; 0.036-0.039% C; 0.09-0.13% O<sub>2</sub>; 0.005-0.009% N<sub>2</sub>; 0.0044-0.0085% H<sub>2</sub>. The study was conducted on annealed Gagarin-, Menagier- and rod-type specimens. The microstructures of the tested alloys of all given compositions, both the cut- and rod-type specimens, are discussed. The mechanical properties of the alloys are shown as a function of quenching temperatures (for rods) and as a function of quenching in water temperatures plus aging (for cut specimens). The properties and annealing temperatures for each alloy after the specified heat treating procedures are cited in tabular form. The

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MOISEYEV, V. N., Metallovedeniye i termicheskaya obrabotka metallov, Sept 71, no 9, pp 35-43

effects of both quench- and age-hardening were still satisfactory at 450°C in alloys with 9 and 20% Nb (12 and 19 kg/mm<sup>2</sup>, respectively) but were less satisfactory at 550°C (9 and 14 kg/mm<sup>2</sup>, respectively). The Ti alloys with 9 and 20% Nb with 3%-Al additions quench-hardened at 450°C showed an increment in mechanical strength -- 21 kg/mm<sup>2</sup>, while those quench-hardened at 550°C -- 16 and 18 kg/mm<sup>2</sup>, respectively.

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UDC 620.17:621.78:669.295'71'292

MOISEYEV, V. N.

"Properties and Heat Treatment of Ti-V and Ti-V-Al Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 24-28

Abstract; A study was made of the properties and structure of Ti-V and Ti-V-Al-alloys after quenching from the phase conversion temperatures (750-950°C) and also after work-hardening heat treatment with respect to optimal conditions: quenching from 800-900°C and aging at 450-550°C for 4-16 hours. Binary titanium alloys with 2, 4, 9, 12, and 15% V and also ternary titanium alloys with the same content of vanadium and 3% Al were investigated. The variation of the mechanical properties and plasticity of Ti-V and Ti-V-3Al alloys during bend testing was plotted as a function of the vanadium content and annealing temperature; the variation of the mechanical properties as a function of the quenching and aging conditions was also plotted. The variation of the temporary properties at increased temperatures was plotted as a function of the vanadium content. It was found that with an

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MOISEYEV, V. N., Metallovedeniye i Termicheskaya Obrabotka  
Metallov, No 3, 1971, pp 24-28

increase in vanadium content to 15% the ultimate strength increased  
after quenching and aging; however, the elongation per unit  
length dropped.

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UDC 620.17:621.78:669.295'71'292

MOISEYEV, V. N.

"Properties and Heat Treatment of Ti-V and Ti-V-Al Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 3, 1971, pp 24-28

Abstract: A study was made of the properties and structure of Ti-V and Ti-V-Al-alloys after quenching from the phase conversion temperatures (750-950°C) and also after work-hardening heat treatment with respect to optimal conditions: quenching from 800-900°C and aging at 450-550°C for 4-16 hours. Binary titanium alloys with 2, 4, 9, 12, and 15% V and also ternary titanium alloys with the same content of vanadium and 3% Al were investigated. The variation of the mechanical properties and plasticity of Ti-V and Ti-V-3Al alloys during bend testing was plotted as a function of the vanadium content and annealing temperature; the variation of the mechanical properties as a function of the quenching and aging conditions was also plotted. The variation of the temporary properties at increased temperatures was plotted as a function of the vanadium content. It was found that with an  
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MOISEYEV, V. N., Metallovedeniye i Termicheskaya Obrabotka  
Metallov, No 3, 1971, pp 24-28

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USSR

UDC 616.988.75-022.14-092.9-07

RITOVA, V. V., LARIONOV, A. S., MOISEYEV, V. P., and PSHENICHNIKOV, V. V.,  
Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences  
USSR and Second Moscow Medical Institute imeni N. I. Pirogov

"Experimental Mixed Influenza-RS-Virus Infection in White Mice"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 12, 1971, pp  
31-33

Abstract: Mice were infected with respiratory syncytial (RS) virus, influenza  
A<sub>2</sub> Hong Kong 68 virus, or both by intranasal injection or aerosol inhalation.  
The course of the resulting infection was more severe when the animals re-  
ceived nasal injections of the material. The death rate was higher in the  
animals receiving both viruses simultaneously than in those given only one.  
The death rate was still higher when the animals received RS virus first and  
influenza virus 18 hours later, but not vice versa. Injected with placebo,  
all the mice, as in the control, survived.

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MOISEYEV, V. P., LARIONOV, A. S., and RITOVA, V. V., Institute of Virology  
Imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Experimental Study of Mixed Influenza and RS-Virus Infection of Cell Cultures"

Moscow, Voprosy Virusologii, No 5, 1971, p 625

Abstract: A mixed viral infection of green monkey cells caused by influenza A2/Hong Kong and RS virus strains was studied. Infection was induced simultaneously and consecutively with the two viruses at intervals of 3 and 18 hours. Using the immunofluorescence method, the authors found the antigens of influenza A2 and RS viruses in the cells at the same time. When the cells were infected first with RS virus and then 18 hours later with influenza A2 virus, there was a distinct mutual potentiation of the effect of the influenza A2 virus in the RS virus -- cell -- influenza A2 virus system. This phenomenon did not occur in other variants of the experiment.

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USSR:

UDC 576.858.75(A2).06

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RITOVA, V. V., SCHASTNYI, E. I., OGANESYAN, O. T., CHEBOTAREV, Y. V., MOISEYEV, V. P., LARIONOV, A. S., BYKOVSKIY, A. F., SOKOLOVA, N. N., and MEL'NICHENKO, YS. N., Institute of Virology Imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Study of Influenza A2 Virus Strains Isolated During the 1968-1969 Epidemic from Children in Moscow and in the Moscow Region"

Moscow, Voprosy Virusologii, No 3, May/Jun 1971, pp 291-196

Abstract: Since 1957, there have been five influenza epidemics in the USSR caused by the A2 virus: in 1957, 1959, 1962, 1965 and 1968-1969. The last one was produced by a newly formed variant of the virus and began in July in Hong-Kong, subsequently spread over Japan, and hit the countries of Southeast Asia and the US. In fall 1968 there was a sharp rise in the influenza incidence in England and in other countries of Central Europe. In December, individual A2 and B influenza foci were reported in the Soviet Union in organized children's collectives (child care centers, schools, etc), and by the middle of January in many cities of the USSR, the incidence of influenza surpassed the mean seasonal rate by a factor of five. From 350 sick children 141 strains of the flu virus were isolated from nasopharyngeal washings.

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RITOVA, V. V., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 291-296

Diagnosis was confirmed serologically. All strains had high receptor activity and were antigenically identical. Neutralization tests showed that the 1969 flu virus is not a new serotype. A structural study showed that the virus consisted of spherical (diameter 2000-3500Å) and filiform, (diameter of the nucleus 700-900Å, length to several microns) structures. Sera from guinea pigs and horses inhibited hemagglutination of the newly separated strains. The effect of sera was not completely removed after heating to 57°C for 30 minutes and processing with  $KIO_4$ ; but was removed by treatment with cholera vibrios. Only two strains were inhibitor-resistant, all remaining strains were inhibitor-sensitive. The isolated strains were readily adaptable to white mice and from the second or third passage produced death and lung lesions in test animals. Also, in mice, the strains exhibited toxic properties. The immunological responses in convalescents and in immunized animals were high.

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USSR

UDC 546.3-19

IVANOV, M. V., MOISEYEV, V. P., and GORBUNOVA, K. M., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Structure and Some Properties of Ni-B Coatings Obtained by Chemical Reduction"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 3, 1970, pp 610-613

Abstract: The article describes results of a study of the structure and some properties (hardness and magnetic characteristics) of Ni-B coatings and considers phase transformations induced by heat treatment. Thermographic and X-ray studies show that during annealing of the coatings not only the  $Ni_3B$  phase occurs, but also the  $Ni_2B$ . The quantity and nature of these phases determine the properties of the coatings subjected to annealing. An unusual relationship is found between the kinetics of the process of segregation of the  $Ni_3B$  and  $Ni_2B$  phases and the ratio of the concentrations of the components of the initial solid solution and these phases. This requires further quantitative analysis.

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1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--STRUCTURE AND SOME PROPERTIES OF CHEMICALLY PRECIPITATED NICKEL  
COPPER PHOSPHORUS COATINGS -U-  
AUTHOR-[02]-MOISEYEV, V.P., LUNECKAS, A. *M*  
COUNTRY OF INFO--USSR  
SOURCE--ZASHCH. METAL. 1970, 6(2), 186-90  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--NICKEL PLATING, COPPER COATING, PHOSPHORUS, METAL COATING,  
SOLID SOLUTION, INTERMETALLIC COMPOUND, MAGNETIC PROPERTY, CHEMICAL  
PRECIPITATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/2099 STEP NO--UR/0365/70/006/002/0186/0190  
CIRC ACCESSION NO--AP0127472  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127472

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NI-CU-P COATINGS WERE PPTD. ON CU PLATES AND RODS AND ON PLEXIGALS FROM A SOLN. OF NISO SUB4.7H SUB2 O, CUSO SUB4.5H SUB2 O, NAH SUB2 PO SUB2.H SUB2 O, NA CITRATE-2H SUB2 O, AND NH SUB4 CO AT PH 8.9-9.1. THE COATINGS WERE STUDIED BEFORE AND AFTER HEAT TREATMENT AT 150-160DEGREES. AN INCREASE OF CU CONCEN: (1) LESSENS LATTICE DISTORTION OF THE BETA SOLID SOLN., (2) SLOWS DOWN THE RATE OF DISSOCN. OF THE INITIAL BETA SOLID SOLN., AND HENCE, IN THE INITIAL STAGE OF TRANSFORMATION, SLOWS THE RATE OF FORMATION AND SEPN. OF THE NI SUB3 P PHASE (WHICH SEP. AS AN INTERMETALLIC COMPD. AT 200-400DEGREES) AND (3) DECREASES THE MAGNITUDE OF MAGNETIC CHARACTERISTICS OF THE COATINGS. THE MAX. DEGREE OF TEXTURE PERFECTION IS REACHED AT 450DEGREES, WHEN THE NI LATTICE BECOMES FILLED WITH CU ATOMS AS THE RESULT OF SEPN. OF NI SUB3 P. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

Coatings

USSR

UDC: 621.357.7

*M*  
MOISEYEV, V. P., and LUNYATSKAS, A. M., Institute of Physical Chemistry,  
Academy of Sciences, USSR

"Structure and Certain Properties of Chemically Deposited Nickel-Copper-  
Phosphorus Coatings"

Moscow, Zashchita Metallov, Vol 6, No 2, Mar-Apr 70, pp 186-190

Abstract: The structure, phase transformations, hardness, and magnetic characteristics of Ni-Cu-P coatings produced by chemical reduction with the use of hypophosphite from alkaline solutions have been studied both in the initial condition and after heat treatment in vacuum at 150--600°C. In the initial state, Ni-Cu-P coatings constitute a substitutional solid solution of copper and phosphorus in a lattice of cubic face-centered  $\beta$ -nickel. Due to the opposite effect of phosphorus, the nickel lattice constant appears to be understated as compared to that rated for the given copper content. In the specimens studied, the distortion of the lattice of the  $\beta$ -solid solution decreased with the increase of copper. The properties of the coatings both in the initial condition and after heat treatment are given in the original article.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ION EXCHANGE IN ALKALI ALUMINOSILICATE GLASSES -U-  
AUTHOR--(03)--MOISEEV, V.V., PERMYAKOVA, T.V., PLOTNIKOVA, M.N.  
COUNTRY OF INFO--USSR *M*  
SOURCE--GLASS TECHNOL. 1970, 11(1), 6-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ION EXCHANGE, ALUMINOSILICATE GLASS, ION, SODIUM COMPOUND,  
POTASSIUM COMPOUND, RUBIDIUM COMPOUND, CESTUM COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1980 STEP NO--UK/0000/70/011/001/0006/0009  
CIRC ACCESSION NO--AP0125569  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARATIVE STUDY WAS MADE OF THE KINETICS OF ION EXCHANGE IN ALKALI ALUMINOSILICATE GLASSES IN AQ. SOLNS. OF NA, K, RB, AND CS SALTS AND IN MELTS OF NA, K, AND AG SALTS. THE EXCHANGE RATE BETWEEN MELT AND GLASS WAS DETD. ONLY BY THE DIFFUSION OF THE IONS INTO THE GLASS. IN AQ. SOLNS. THE ION EXCHANGE PROCESS AT THE SURFACE INFLUENCED THE KINETICS. THE INTERDIFFUSION OF IONS WAS STUDIED IN THE GLASS SOLN. AND GLASS MELT SYSTEMS. IN BOTH SYSTEMS THE CONC. OF IONS IN THE LIQ. PHASE INFLUENCED THE QUANTITY OF IONS WHICH THE GLASS ABSORBED. FACILITY: INST. SILICATE CHEM., LENINGRAD, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED  
TITLE--CARBOHYDRATE METABOLISM IN BURNS -U- M PROCESSING DATE--11SEP70  
AUTHOR--SHURYGIN, D.YA., MOISEYEV, YE.A., KONSTANTINOVA, M., BELYAYEV,  
V.YE., ANTONOV, V.B.  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP  
75-80  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBOHYDRATE METABOLISM, BURN, TRAUMATIC SHOCK, ADRENAL  
CORTEX, CATECHOLAMINE, PANCREAS, BLOOD CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/0639

STEP NO--UR/0589/70/104/003/0075/0080

CIRC ACCESSION NO--AP0102625

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102625

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS HAVE STUDIED CARBOHYDRATE METABOLISM IN VARIOUS PERIODS OF BURN DISEASE. IN THE FIRST PERIOD OF BURN DISEASE (BURN SHOCK) HYPERGLYCEMIA IS OBSERVED. IT CORRESPONDS TO GRAVITY OF THE AFFECT SN AND 60 RELATED WITH THE ENHANCED FUNCTIONING OF THE ADRENAL CORTEX. IN THE SECOND PERIOD (BURN INFECTION AND TOXICEMIA) THE REDUCTION IN BLOOD SUGAR LEVEL IS NOTED THAT COINCIDES IN TIME WITH THE REDUCTION OF CATECHOLAMINES EXCRETION, DECREASED GLUCOCORTICOID ACTIVITY OF THE ADRENAL CORTEX AND NORMALIZATION OF CORRELATION OF VARIOUS CELLS IN THE LANGERHANS ISLETS. IN BURN EMACIATION (III D PERIOD) FURTHER REDUCTION IN BLOOD SUGAR LEVEL IS OBSERVED. DURING THE PERIOD OF RECOVERY THE AMOUNT OF SUGAR IN BLOOD IS RESTORED UP TO ITS NORMAL VALUES AND IS ASSOCIATED IN MOST PATIENTS WITH NORMALIZATION OF THE ADRENAL GLUCOCORTICOID FUNCTION.

UNCLASSIFIED

MOISEYEV, G.P.

hydrology

GLACIERS AS INDICATORS OF WATER CONTENT

Article by Candidate of Geographic Sciences N. N. MOISEYEV, G. P. MOISEYEV, Geography Institute of the USSR Academy of Sciences, Moscow, Glaciology, Gidrolizy, No 6, 1972, submitted 23 October, 1971, pp. 51-53.

In this article an effort is made to calculate the water content of the water content of the glacial regions of the USSR using some data sources: 1) the annual snow and ice ablation, 2) the climatic data on the air temperature and solar radiation, 3) data on the location and morphology of glaciers.

The alpine-glacial and high-latitude areas of the USSR represent insufficiently covered by atmospheric precipitation and runoff conditions data for objective reasons. At the same time, the glacial regions currently receive the most snow, and in the majority of cases they have the most water of any parts of the territory. This is indicated by the snowmelt data in the glacial basins primarily by the 100 (International Geophysical Year) and 100 International Hydrologic Decade) program (1,3,4,7,8,10,11,13,14,17). The indirect calculations of [6,16,18] also lead to the same conclusion.

In this article we shall make an effort to calculate an estimate of the water content of all the glacial regions of the USSR. For this purpose, the following sources of mass information were used: 1) the annual ablation of the ablation (A/G/cm<sup>2</sup>) of snow and ice (by the measurements on the glaciers throughout the world), 2) climatic data on the air temperature and solar radiation for the territory of the USSR, 3) the data on the location and morphology of glaciers from the Kaplan, Lezhikov SSR (USSR Glacier Catalog) (hydrogeological press) and other sources.

Previously, we [15] proposed an empirical function  $A = f(t)$  where  $t$  is the mean summer air temperature at an altitude of two meters above the surface of the glacier. At this time, thanks to the efforts of Soviet and foreign glaciologists, the amount of raw data has been increased 19%. By the 93 pairs of variables available to us, using the least squares method, we obtained the formula  $A = 0.096(t+10)^2 + 93$  which does not differ in practice from the previously proposed equation of a cubic parabola. However, the altitude

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--IR-SPECTROSCOPICAL STUDY OF SUBSTITUTED, TRIFLUOROMETHYL,  
BENZIMIDAZOLES -U-  
AUTHOR--(03)-MOISEYEVA, G.P., KADYROV, CH.SH., YAGUDAYEV, M.R.  
COUNTRY OF INFO--USSR  
SOURCE--UZBEKSKIY KHIMICHESKIY ZHURNAL, 1970, NR 2, PP 41-43  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, FLUORINATED ORGANIC COMPOUND, BENZENE DERIVATIVE,  
ORGANIC AZOLE COMPOUND, PLANT PHYSIOLOGY, PHOSPHORYLATION, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1695

STEP NO--UR/0291/70/000/002/0041/0043

CIRC ACCESSION NO--AT0136937

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 030

CIRC ACCESSION NO--AT0136937

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINCE THE HERBICIDE (TRIFLUOROMETHYL) BENZIMIDAZOLE, WHICH DISRUPTS THE OXIDATIVE PHOSPHORYLATION IN PLANTS, SHARPLY DECREASES ITS BIOLOGIC ACTIVITY ON SUBSTITUTION OF H IN THE NH GROUP FOR AN ALKYL, THE AUTHORS ASSUMED THAT THE HERBICIDAL ACTIVITY IS CONNECTED WITH THE H BONDS IN THE MOLECULE AND IS CORRELATED WITH THE BASICITY AND THE IR SPECTRUM OF THE DERIVATIVES. AN IR SPECTRA INVESTIGATION WAS MADE TO OBTAIN MORE ACCURATE DATA ON THE POTENTIAL BIOLOGIC ACTIVITY WHICH COULD BE TAKEN INTO ACCOUNT IN THE SYNTHESIS OF BIOLOGICALLY ACTIVE COMPOUNDS. THE FOLLOWING INTERMOLECULAR H BOND TYPES ARE MOST PROBABLE FOR (TRIFLUOROMETHYL) BENZIMIDAZOLE (TFB): SHOWN ON MICROFICHE. THE SPECTROSCOPIC STUDY INDICATED THAT THERE IS NO INTRAMOLECULAR BOND BETWEEN NH AND CF SUB3 GROUPS. IN THE DERIVATIVES STUDIED THE HERBICIDAL ACTIVITY INCREASED WITH THE INCREASE OF ELECTROPOSITIVENESS OF NITROGEN IN THE NH GROUP. FACILITY: INSTITUT KHMII RASTITEL'NYKH VESHCHESTV, AN UZSSR.

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UDC 620.193.01"669.29

USSR

ANDREYEVA, V. V., GLUKHOVA, A. I., DONTSOV, S. N., MOISEYEVA, I. S., and  
MEL'NIKOVA, L. V., Institute of Physical Chemistry, Academy of Sciences USSR

"Corrosion Resistance and Electrochemical and Mechanical Properties of Ternary  
Nb-Ti-Ta and Nb-Ti-Cr Alloys"

Moscow, Zashchita Metallov, No 4, 1972, pp 415-419

Abstract: Binary alloys of Nb-Ta are highly resistant to solutions of strong acids. These alloys are quite promising for the manufacture of important parts of chemical apparatus. It was assumed that the presence of tantalum in binary Nb-Ti alloys should increase their corrosion resistance without reducing mechanical and technological characteristics. An experimental study was therefore made of the influence of the individual elements on the corrosion resistance and electrochemical and mechanical properties of certain ternary niobium-based alloys with titanium, tantalum, and chromium. The corrosion resistance of Nb-Ti-Ta alloys in solutions of sulfuric and hydrochloric acid at 100°C decreases with increasing titanium content, with tantalum content remaining constant. The addition of 1 to 5% chromium to niobium has no influence on its resistance to these acids, but reduces workability in the hot and cold states. Addition of chromium to Nb-Ti alloys can produce alloys with good technological properties. The chromium significantly increases the  
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ANDREYEVA, V. V., et al., Zashchita Metallov, No 4, 1972, pp 415-419

strength characteristics at high temperatures. Addition of chromium also increases the hardness of cast alloys. Dendritic liquation occurs in alloys containing 30 and 40% Ti and 4-5% Cr. Addition of up to 5% chromium to Nb-Ti alloys does not worsen acid resistance, but increases mechanical characteristics.

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USSR

UDC 669.293.5.294.013.8.669.018.2

DONTSOV, S. N., MOISEYEVA, I. S., MEL'NIKOVA, L. V., GLUKHOVA, A. I., ANDREYEVA, V. V., ALESHINA, L. V., STRIZHEVSKAYA, L. G.

"Influence of Technological Factors on Corrosion Resistance and Mechanical Properties of Niobium-Tantalum Alloys"

Nauchn. Tr. N-i. i Proyechn. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1971, Vol. 32, pp. 152-160. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 1736 by the authors).

Translation: Influence of technological factors on the corrosion resistance of Nb-Ta alloys is studied. 4 figs; 5 biblio refs.

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USSR

UDC 669.293.5'295'71:669.018.2:620.193.41

ANDREYEVA, V. V., ALEKSEYEVA, Ye. L., DONTSOV, S. N., and MOISEYEVA, I. S.

"Corrosion of Alloys of the Niobium-Titanium-Aluminum System"

V sb. Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 49-54 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I825 by the authors)

Translation: The article considers the mechanical properties, as well as the corrosion resistance of alloys of the Nb-Ti-Al system in 20% HCl and 40-75% H<sub>2</sub>SO<sub>4</sub> at 40 and 100°. The authors present potentiostatic current-density/potential and corrosion-rate/potential curves taken in 75% H<sub>2</sub>SO<sub>4</sub> at 140° using alloys with varying Ti and Al content. The corrosion resistance of the alloys is exponentially dependent on their atomic content of alloy components (Ti, Al), with Al most intensely affecting the deterioration of corrosion resistance. Three illustrations. Two tables. Bibliography of five titles.

1/1

USSR

UDC 669.293.5'294:620.193:669.231

GLUKHOVA, A. I., ANDREYEVA, N. N., DONTSOV, S. N., and MOISEYEVA, I. S.

"Niobium-Tantalum Alloys Doped With Platinum"

V sb. Korroziya i zashchita met. (Metal Corrosion and Protection -- Collection of Works), Moscow, "Nauka," 1970, pp 54-60 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1824 by the authors)

Translation: Supplemental doping of Nb-Ta alloys with small quantities of Pt raises their corrosion resistance under highly corrosive conditions. In 75%  $H_2SO_4$  at 150° the corrosion rate of an alloy of Nb with 30% Ta doped with 0.2% Pt is 4-6 times less than the corrosion rate of this alloy without supplemental doping, with the corrosion rate of the alloy doped with 0.2% Pt not depending on the magnitude of the applied potential and equaling only 0.1 g/sq m·hr, whereas the corrosion rate of the alloy without supplemental doping increases with potentials more positive than + 1.7 v. Five illustrations. Bibliography of four titles.

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1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--THE BINOCULAR INTERACTION IN THE VISUAL CORTEX OF RATS -U-  
AUTHOR--(02)-BIANKI, V.L., MOISEYEVA, L.A. M  
COUNTRY OF INFO--USSR  
SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHENOVA, 1970, VOL 56,  
NR 3, PP 305-311  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VISUAL PERCEPTION, BINOCULAR VISION, BRAIN, BIOPOTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1982/1612

STEP NO--UR/0239/70/056/003/0305/0311

CIRC ACCESSION NO--AP0052807

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052807

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE BINOCULAR INTERACTION WAS STUDIED IN THE 17 AND 18 VISUAL CORTICAL AREAS IN ANESTHETIZED WHITE RATS WITH THE EVOKED POTENTIAL METHOD. FOUR PHASES OF THE BINOCULAR INTERACTION WERE SHOWN: 1) AN INITIAL FACILITATION (INTERVAL 0 MSEC); 2) AN INITIAL DEPRESSION (INTERVAL 20-60 MSEC); 3) LATE FACILITATION (INTERVAL 80-220 MSEC); 4) LATE DEPRESSION (INTERVAL 240-300 MSEC). ALL FOUR PHASES ONLY APPEARED IN THE 18 CORTICAL FIELD WITH CHLORALOSE NEMBUTAL ANESTHESIA. IN THE SAME FIELD WITH PURE NEMBUTAL ANESTHESIA AND IN THE 17 FIELD, FIRST TWO PHASES WERE EVIDENT ONLY. THE LAST TWO PHASES WERE ELIMINATED BY THE CORPUS CALLOSUM SECTION.

UNCLASSIFIED

Ion Exchange

UDC 541.183.12+541.67

USSR

MOISEYEVA, N. P., SINYAVSKII, V. G. and ROMANKEVICH, M. Ya., Institute of Colloidal and Water Chemistry

"Magnetochemical Study of Amino Acetate Ion-Exchange Resins with Ions of Transition Metals"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 943-947

Abstract: The synthetic ion-exchange resins KhKA-1 and -2, the cationic resin KU-2, and their low-molecular analogues, aniline diacetic acid and phenyl glycerin were studied. The magnetic susceptibility and effective magnetic moment were determined for the resins using the ions  $\text{Ca}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Fe}^{3+}$ , and  $\text{Cr}^{3+}$ . The results showed that the KhKA series formed coordination bonds between the resin and metal, while the bonding of the KU-2 resin was ionic in character. Conclusions concerning the 3-dimensional structure of the resin-metal complex were based on the magnitude of the effective magnetic moment. Finally, the capacity of the chelating ion-exchange resin to form different complexes was shown to be dependent on the nature of the ionite and the metal ion. This appears to be characteristic for the low-molecular complexes as well.

V. N. TOLMACHEV and N. S. PIVNENKO collaborated in this work.

1/1

UDC 541.623:547.241

USSR

SHVETS, A. A., OSIPOV, O. A., and MOISEYEVA, O. A.

"Keto-Enol Tautomerism of Certain Substituted  $\omega$ -(diphenylphosphinyl)aceto Phenones"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 59-61

Abstract: Some results are presented from studying the keto-enol equilibrium of diphenylphosphinylaceto phenones containing different substitutions in the phenyl ring on the carbonyl group. The investigated  $\beta$ -ketooxides of the phosphines were obtained with a 60-80% yield by the effect of the ethyl ester of diphenyl phosphonous acid on the solution of substituted  $\omega$ -bromoacetophenones in toluene at 110-120° by a procedure similar to the one used by T. Ya. Medved', et al. [Izv. AN SSSR, ser. khim., No 1707, 1965]. The substituted diphenyl phosphinyl acetophenones were obtained by Arbuzov regrouping [B. A. Arbuzov, et al., Izv. AN SSSR, ser. khim. 669, 1965]. By bromometric titration in methanol, the content of the enol form in the compounds was found. The logarithm of the keto-enol equilibrium constant is related linearly to the Hammett constants of the substitutions.

1/1

USSR

UDC 541.651:661.718.1

SHVETS, A. A., OSIPOV, O. A., AMARSHIY, E. G., and MOISEYEVA, O. A., Rostov-on-the-Don State University

"Study of the Oxides of Aromatic Phosphines and Their Complexes by Infrared Spectroscopy"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 4, 1972, pp 829-833

Abstract: The relationship between the electro-orientation parameters  $\sigma_f$  and the phosphoryl vibration energy and that between the P=O and extraction capacity for substituted triphenylphosphine oxides and their complexes with  $ZnCl_2$  and  $SnCl_4$  were studied using the IR spectra of the various species. The complexes have a general form of  $ZnCl_2 \cdot 2(XC_6H_4)_3PO$ . The frequency of the P=O (in  $cm^{-1}$ ) increases in the order p- $(CH_3)_2N$ , p- $CH_3O$ , p- $CH_3$ , H, p-Br, m-Br, and m- $NO_2$  for the free ligand. The order remains the same for the complexes but is shifted to a lower value for the  $ZnCl_2$  complexes and to a still lower wave number for  $SnCl_4$  complexes. In both the triphenylphosphine oxides and their complexes there was evidence of a direct polar bond between the substituents and the phosphoryl group. This increased in going from the free ligand to the complex. The electronic effect generated by the phosphorus atom is about three times less than by the carbon atom in the caronyl group of acetophenone.

1/1

1/3 029 UNCLASSIFIED PROCESSING DATE--0900170  
TITLE--EMISSIVITY AND REFLECTIVITY OF ICE IN IR SPECTRUM -U-  
AUTHOR--(03)-BEZVERKHNIY, SH.A., BRAMSON, M.A., MOISEYEVA, YE.V. M  
COUNTRY OF INFO--USSR  
SOURCE--IZVESTIYA AKADEMII NAUK SSSR. FIZIKA ATMOSFERY I OKEANA, VOL VI,  
NO 3, 1970, PP 314-317  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ICE, IR SPECTRUM, EMISSIVITY, LIGHT REFLECTION COEFFICIENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1991/0725 STEP NO--UR/0362/70/006/003/0314/0317  
CIRC ACCESSION NO--AP0110454  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/3 029

CIRC-ACCESSION NO--AP0110454

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IN THE IR REGION OF THE SPECTRUM ICE IN SMALL THICKNESSES COMPLETELY ABSORBS THE REFRACTED FLUX AND THEREFORE FOR CASES OF PRACTICAL IMPORTANCE THE EMISSIVITY IS  $E_{\gamma}$  EQUALS  $1 - \rho_{\lambda}$ , WHERE THE REFLECTION COEFFICIENT FOR UNPOLARIZED RADIATION IS DETERMINED BY THE FRESNEL FORMULA. THE COMPLEX NATURE OF THE REFRACTION COEFFICIENT OF ICE RELATIVE TO AIR IN THE IR REGION MAKES IT DIFFICULT TO USE THE FRESNEL FORMULA. ACCORDINGLY, AN ELECTRONIC COMPUTER WAS USED IN TABULATING THE COMPLEX VALUES. THE COMPLEX REFRACTIVE INDEX IS DETERMINED AS  $N_{\lambda} = N_{\lambda} - iK_{\lambda}$  WHERE  $K_{\lambda}$  IS THE ABSORPTION INDEX,  $N_{\lambda}$  IS THE REFRACTIVE INDEX. THE  $N^2$  AND  $K_{\lambda}$  VALUES ARE ESSENTIALLY DEPENDENT ON WAVELENGTH AND THEIR VALUES ARE FOUND EXPERIMENTALLY. THE STUDIES OF THE RADIATION OF ICE IN THE IR SPECTRUM REVEAL THAT: 1. THE GREATEST CHANGES ARE OBSERVED WITH AN INCREASE IN THE ANGLE OF SIGHT OF THE S COMPONENT; THE P COMPONENT INCREASES TO A BREWSTER ANGLE (MICRON  $\rho_{\lambda}$  APPROXIMATELY EQUAL TO 1), FOLLOWED BY A DROPOFF, BUT SLOWER THAN FOR THE UNPOLARIZED FLUX OR THE S COMPONENT. 2. THE UNPOLARIZED RADIATION IN THE SIGHTING ANGLES FROM 0 TO 40 DEGREES AND THE P COMPONENT IN THE RANGE FROM 0 TO 60-70 DEGREES ARE EXTREMELY CLOSE TO UNITY. THE GREATEST SPATIAL STABILITY IS EXHIBITED BY THE P COMPONENT OF RADIATION IN THE RANGE OF CHANGE OF SIGHTING ANGLES  $\psi \pm 15$  DEGREES. 3.

UNCLASSIFIED

3/3 029

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110454

ABSTRACT/EXTRACT--THE SPECTRAL VARIATION OF THE EMISSIVITY OF ICE IS CHARACTERIZED BY THE PRESENCE OF EXTERNAL POINTS, FOR THE MOST PART CORRESPONDING TO THE SIMILAR  $N$  LAMBDA AND  $CHI$  LAMBDA MAXIMA AND MINIMA. HOWEVER, THE EXTREMA ARE MANIFESTED CONSIDERABLY MORE WEAKLY, PARTICULARLY FOR LARGE SIGHTING ANGLES. 4. THE SHARPEST CHANGES ARE EXHIBITED BY THE SPECTRAL CHARACTERISTICS OF THE  $P$  COMPONENT OF REFLECTION NEAR BREWSTER ANGLES SO SMALLER THAN  $PSI$  SMALLER THAN 60DEGREES. SINCE THE BREWSTER ANGLE IS ALSO A SELECTIVE CHARACTERISTIC, THEN  $P$  LAMBDA YIELDS 0 FOR DIFFERENT WAVELENGTHS FOR DIFFERENT VALUES OF THE  $PSI$  ANGLE. AS A RESULT, THE SHAPES OF THE SPECTRAL CURVES ARE IMPAIRED AND ADDITIONAL MAXIMA AND MINIMA APPEAR ON THE CURVES  $PSI$  EQUALS 50 AND 60DEGREES. THERE IS A RELATIVE COINCIDENCE OF THE SPECTRAL DISTRIBUTION OF EMISSIVITY AND REFLECTIVITY OF ICE AND WATER. HOWEVER, THE QUANTITATIVE DIFFERENCE ARE CONSIDERABLE, PARTICULARLY IN THE LONGWAVE PART OF THIS SPECTRAL REGION.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--DEPENDENCE OF THERMOCONDUCTIVITY OF TERRIGENE ROCKS OF THE WEST  
SIBERIAN LOWLAND ON OTHER PHYSICAL PARAMETERS -U-  
AUTHOR--MOISEYEVKO, U.I., DOROGINITSKAYA, L.M., LEONTYEV, YE.I., SOKOLOVA,  
L.S. M  
COUNTRY OF INFO--USSR  
SOURCE--GEOLOGIYA I GEOfIZIKA, 1970, NR 2, PP 106-110  
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS  
TOPIC TAGS--ROCK, SANDSTONE, POROSITY, ELASTIC WAVE, HEAT CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1986/1232

STEP NO--UP/0210/70/000/002/0106/0110

CIRC ACCESSION NO--AP0103120

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103120

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF THE STUDY OF SANDSTONES, ALEVROLITES AND ARGYLLITES THERMOCONDUCTIVITY DEPENDENCE ON SPECIFIC GRAVITY, POROSITY, DENSITY, ELASTIC WAVES VELOCITY AND SPECIFIES ELECTRIC RESISTANCE ARE LISTED IN THE PAPER. THE MEASUREMENTS OF PHYSICAL PARAMETERS WERE MADE ON THE DRY SAMPLES AND THOSE SATURATED IN WATER. THE RESULTS OF OBTAINED DEPENDENCE OF THERMOCONDUCTIVITY ON ENUMERATED PARAMETERS ARE PRESENTED AS EMPIRICAL EQUATIONS AND DIAGRAMS.

UNCLASSIFIED

USSR

UDC 614.866:546.841

CHERKASHINA, T. N., PAVLOVSKAYA, N. A., and MOISEYTSSEV, P. I.

"Deactivation of Surfaces Contaminated With Isotopes of Thorium and Its Disintegration Products"

Moscow, Gigiyena i Sanitariya, No 10, Oct 1970, pp 33-37

Abstract: Samples of material contaminated with a  $\text{Th}^{228}\text{Cl}_4$  solution in equilibrium with disintegration products ( $3 \cdot 10^{-3}$  microcurie/mg) with a  $\text{Th}^{232}$  carrier (18 mg/ml) were dried for 18-25 hours at room temperature and the activity measured. The samples were then deactivated by various strong detergents (alkyl sulfonate, GIPKh-200, proxanol-224, and SP 333-60), and the remaining activity was determined at various intervals after deactivation. The degree of contamination was established by the prevailing levels of alpha- and gamma-activity. The short-lived lead-212 isotope was most stably absorbed. The long-lived  $\text{Th}^{228}$  and  $\text{Ra}^{224}$  isotopes were much more readily removed from the test surfaces. Porous surfaces such as linoleum and ceramic tile retained both the short- and long-lived isotopes.

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- 25 -

USSR

UDC 666.764.001.4

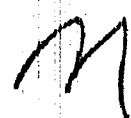
GUZMAN, I. Ya., IVANTSOVA, L. A., and MOISEVTSEVA, Z. K., Moscow Institute of Chemical Technology imeni D. I. Mendeleev

"Production and Properties of Refractories Made From Magnesium Oxide on Nitride and Complex Bonds"

Moscow, Ogneupory, No 11, Nov 72, pp 44-48

Abstract: Composite materials based on grains of fused magnesium oxide combined with silicon nitride, silicon oxynitride, and a complex bond consisting of forsterite, silicon carbide, and silicon nitride were produced by reaction caking. The composite and some of its properties are investigated. In comparison with grained refractories based on magnesium oxide, the composite materials possess lower porosity, higher strength, and higher thermal stability. The composite material also has good dielectric properties at increased temperatures. This material can be used at temperatures up to 1500°C in presence of thermal shocks. Three figures, 2 tables, 11 bibliographic references.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--USE OF RADIOACTIVE INDICATORS TO STUDY THE LEACHING OF GLASSES -U-  
AUTHOR--(021)-MOISSEV, V.V., PLOTNIKOVA, M.N.   
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 197  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ALUMINOSILICATE GLASS, RADIOACTIVE TRACER, SODIUM COMPOUND,  
GLASS PROCESSING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1989/0501

STEP NO--UR/0363/70/006/001/0187/0187

CIRC ACCESSION NO--AP0107106

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107106

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEACHING WAS STUDIED OF THE SERIES OF NA ALUMINOSILICATE GLASSES OF THE COMPN. NA SUB2 0.X AL SUB2 0 SUB3 .2SIO SUB2 (I) WHERE X SUCCESSIVELY WAS 0.00, 0.01, 0.05, 0.10, 0.15, 0.30, AND 0.50 MOLE PERCENT, AND GLASSES 0.5NA SUB2 0.0.15AL SUB2 0 SUB3 .2SIO SUB2 (III). PRIME22 NA WAS USED AS A TRACER. INVESTIGATION OF THE LEACHING OF GLASSES IN A 0.001M NaCl SOLN. AT 95DEGREES SHOWED THAT WITH INCREASING AL SUB2 0 SUB3 CONTENT IN THE GLASS THE AMT. OF NA PRIME POSITIVE ENTERING INTO SOLN. FROM 1 CM PRIME2 OF THE SURFACE DECREASES. SOME ANOMALY IN THE GENERAL BEHAVIOR OF THIS DEPENDENCY WAS OBSO. FOR GLASSES WITH X EQUALS 0.01 AND 0.15. THE EFFECT OF THE CONCN. OF THE SOLN. AND THE NATURE OF THE ALKALI ION ON LEACHING WAS STUDIED ON THE 2 RELATIVELY STABLE GLASSES I(X EQUALS 0.3) AND II. THE EXPTL. DATA SHOW THAT THE AMT. OF NA PRIME POSITIVE ENTERING INTO THY SOLN. DOES NOT DEPEND ON THE STARTING CONCN. OF KCL, RBCL, AND CSCL WITHIN THE CONCN. RANGE INVESTIGATED, BUT THAT IT DEPENDS SOMEWHAT ON THE NaCl CONCN. THE DIFFUSION COEFFS. BY 2 METHODS WERE CALCD. AND THE DATA TABULATED AND COMPARED.

UNCLASSIFIED

Thin Films

USSR

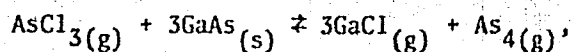
UDC: 541.124/.128

RTSKHILADZE, V. G., MOISTSRAPISHVILI, A. V., CHITORELIDZE, G. M.,  
MAMULASHVILI, M. P., ABASHIDZE, T. D.

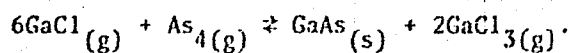
"Study of the Possibility of Producing Epitaxial Gallium Arsenide by  
the Method of Chemical Transport Reactions in a Stream of Argon"

Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 67, No 3, 1972, pp 637-640.

Abstract: This article presents a study of chemical-transport deposition  
of gallium arsenide films, with the usual hydrogen transport medium  
replaced by the inert gas argon. The reaction at the source zone is



and in the deposition zone



The reaction tube was heated by a resistance furnace with two independent  
heaters. Temperature was maintained with an accuracy of 0.5°C in each  
zone. The study showed that the main factor influencing etching of the

1/2

USSR

RITSKHILADZE, V. G., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR  
Vol 67, No 3, 1972, pp 637-630

substrates and decreasing growth rate at high stream velocities was the increase in the quantity of  $\text{AsCl}_3$  present at the source zone. The growth rate as a function of argon stream velocity shows a maximum at about  $70 \text{ cm}^3/\text{min}$ , the subsequent decrease resulting from the fact that, due to the high difference in temperature drop between the two zones, a portion of the gallium arsenide formed is deposited on the walls of the reaction vessel before reaching the substrate zone. The quality of the epitaxial layer produced increases with increasing deposition temperature up to  $710\text{-}730^\circ\text{C}$ . The films produced were monocrystalline, oriented in the same direction as the substrate.

2/2

Acc. Nr

AP0050438

Abstracting Service:  
CHEMICAL ABST. 5/70

Ref. Code

4R0051

105451n Changes in the electronic spectra of dissolved molecules observed under crystallization conditions of different solvents. Moiseva, E. G.; Mazurok, L. G. (USSR). *Opt. Spektrosk.* 1970, 28(3), 232-4 (Russ). The effect of phase transitions of a crystd. solvent (n-heptane) on the electronic spectra of dissolved mols. (coronene) is reported. Changes in the spectra, during slow and fast crystn. of the solns., were also studied. The spectra can differ in the positions and halfwidths of the bands, depending on the crystn. conditions.

Alexandre Fies

REEL/FRAHE

19810417

UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2 024

TITLE--THE SELECTION OF UPSET PARAMETERS IN FLASH WELDING OF ALUMINUM AND ITS ALLOYS -U-

AUTHOR--(U3)--KABANOV, N.S., MOKEICHEV, V.G., RYSS, B.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROVCHNOYE PROIZVODSTVO, NO 3, 1970, PP 23-29

DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM ALLOY, FLASH WELDING, BIBLIOGRAPHY, ALUMINUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1306

STEP NO--UR/0135/70/000/003/0028/0029

CIRC ACCESSION NO--AP0123265

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MINIMUM PERMISSIBLE SPEEDS AND SPECIFIC PRESSURES OF THE UPSET IN FLASH WELDING OF 1-5 MM THICK AND 100-300 MM WIDE STRIPS FROM FORMING ALUMINUM ALLOYS ARE BEING DEFINED MORE ACCURATELY.

UNCLASSIFIED

MOKEROV, I.P.

PUBLIC  
Health

SO:JPRS 54134

6 OCT 71

UDC 614.1:312.2-053.2

# SOME ASPECTS OF THE STUDY OF INFANT MORTALITY

[Article by I.P. MOKEROV, (Mokrov); Moscow, Sovetskaya Zdravookhraneniya,  
Biosistem, No 6, 1971, pp 74-77]

The index of childhood mortality is distinguished from the total childhood death rate because of its importance for indirect characterization of sanitary and material welfare of not only children but also the entire population. It is also important for medical workers because the severe and quality of activities of public health institutions and agencies in the area of child health protection affects this index.

In the present article we submit some of the results of a study of infant mortality made in Sverdlovsk.

The total index of infant mortality is the mean from the death indices at different ages. However, the probability of death is not the same throughout the first year of life (Table 1). In 1964-1965, the death rate for infants in Sverdlovsk was nine times higher during the first six months of life than in the second half year. Two-thirds of the deaths at less than 6 months of age (65 percent) is referable to infants in their first month of life. The first, second, and third day after birth is the most dangerous period in the infant's life. Of all the infants who died before the age of one year, 45 percent did not even live to the third day. The distribution of deaths according to age, up to 12 months, is shown in Table 2.

We can readily observe that there were more than 50 percent less deaths at 4-6 months of age, and in 1966, the rate constituted 10 percent, versus 20.4 percent in 1961. There was a 2.8-fold decrease in deaths at the age of 7-11 months within the same period (the percentage dropped from 22.4 to 7.9). There was, however, a relative increase in share of infant deaths up to the age of one month as compared to all deaths up to one year of age.

The shifts in age structure of infant mortality are shown in Table 3. We see the trend observed in the last few years of more deaths of newborns in the first few days of life as compared to the total deaths at up to one month of age. Such a visible rise in death rate of "younger" infants suggests that infant mortality is becoming not so much a pediatric as an obstetrical problem.

GLORIA

USSR

UDC 621.385.002.72:553.59

MOLCHANOVA, L.G., LOPATO, L.V.

"Use Of Small-Sized Sputter-Ion Pump For Detection Of Leaks In Sealed-Off Electrovacuum Devices"

Elektron.tekhnika. Nauch.-tekhn.sb.Elektron SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, No 9, pp 51-56 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1A44)

Translation: The possibility is experimentally confirmed of detecting the location of a leak in a sealed-off traveling-wave tube with a built-in sputter-ion [elektrozaryadnyy] pump by ventilation of the envelope by a jet of inert gas. One may consider argon as the best probe gas for detection of a leak. It makes it possible to observe a change of the discharge current of the pump with the presence of a leak during a prolonged time after discontinuation of the argon supply, which facilitates indication of a leak. The method described makes it possible quickly to detect inleakage with a satisfactorily precise determination of the location of the leak in sealed-off devices. Leaks with a magnitude on the order of  $10^{-4}$ -- $10^{-5}$  l.micron column of mercury/sec are detected after several seconds. 8 ref. A.F.

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- 116 -

AA0046265

UR 0482

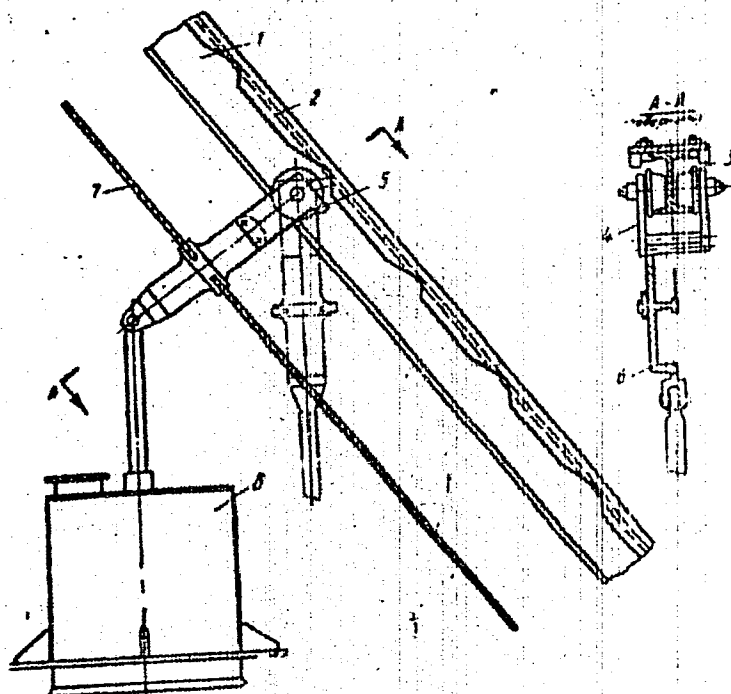
M  
Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 2-70

239854 OVERHEAD CONVEYOR incorporates features enabling small radius changes of direction in the conveying track and preventing the load from falling should the traction cable break as it is negotiating an ascent or descent in the track. At points of ascent and descent on track 1 are fitted extra plates 2 with depressions into which protrusions 5 on cheeks 4 lock in the event of a cable break. Cheeks 4 are mounted on rollers 3 and E-shaped carrier 6 is suspended from them. The central arm of this E-shaped section interacts with the sets of rollers which support the carrier and its load at bends in the track.

13.11.67. as 1196334/27-11, NOKKEV, N.A. (4.9.69)  
Bul. 11/18.3.69. Class 81a, Int. Cl. B 65g.

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19781388  
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AA0046265



19781389

1/2 009  
TITLE--TOWARD THE SECRETS OF NEPTUNE -U-  
AUTHOR--MOKEYEV, YU.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, PRAVDA, 11 MARCH 1970 P 6  
DATE PUBLISHED--11MAR70

PROCESSING DATE--11SEP70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--OCEANOGRAPHIC EXPEDITION, BOTTOM SEDIMENT, OCEANOGRAPHIC R AND  
D/(U)VITYAZ OCEANOGRAPHIC SHIP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/1583

STEP NO--UR/9012/70/000/000/0006/0006

CIRC ACCESSION NO--AN0108003  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0108003

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE "VITYAZ'", A VETERAN OF THE SCIENCE FLEET, HAS LEFT ON ITS 47TH VOYAGE. ITS DESTINATION IS THE SEA OF JAPAN. V. CHAYNIKOV, DEPUTY DIRECTOR OF THE EXPEDITION, SAID: "FIFTY OF THE SCIENTISTS ON BOARD ARE WORKERS OF THE PACIFIC OCEAN DEPARTMENT OF THE INSTITUTE OF OCEANOLOGY. GROUPS OF SCIENTISTS FROM THE NORTH KOREAN PEOPLE'S DEMOCRATIC REPUBLIC AND JAPAN WILL WORK WITH US ON PROBLEMS OF STUDYING THE SEA OF JAPAN. A SPECIAL PLACE IN THE INVESTIGATIONS WILL BE DEVOTED TO QUESTIONS OF STUDYING BOTTOM SEDIMENTS. SAMPLES WILL BE TAKEN FOR SUBSEQUENT ANALYSIS. SEVERAL YEARS AGO DURING ONE OF OUR VOYAGES WE FOUND FERROMANGANESE NODULES, SMALL SPHERICAL OBJECTS, ON THE BOTTOM OF THE SEA OF JAPAN. FURTHER SEARCH WILL HELP US FORM A MORE PRECISE PICTURE OF THEIR DISTRIBUTION". (4).

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UNCLASSIFIED

AN0040350

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NR 9012

AUTHOR-- MOKEYEV, YU., CORRESPONDENT

TITLE-- THE OCEANIC SHIELD

NEWSPAPER-- PRAVDA, APRIL 16, 1970, P 6, COLS 4-7

ABSTRACT-- THE FOLLOWING SHIPS ARE MENTIONED AS PARTICIPANTS IN THE "OKEAN" EXERCISE-- THE "VDOKHNOVENNYY", THE "VLADIVOSTOK", AND THE "STROGIY".

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19741785

USSR

UDC 532.529.533.6

CHERNYY, I. M., PRIKHOD'KO, N. A., and MOREYEV, Yu. G., Institute of Hydro-mechanics of the Academy of Sciences of the Ukrainian Soviet Socialist Republic

"To the Theory of Gas-Hydraulic Engine Installations"

Kiev, Gidromekhanika, No 19, 1971, pp 15-24

Abstract : The hydro-thermodynamic principles of the theory of the gas-hydraulic reaction engine of high speed vessels with gas-turbine engine in the capacity of generator gas producer are discussed by reference to the schema of a waterjet installation. On the basis of cited correlations, an analysis of the propulsive coefficient is presented with due regard for the principal internal losses of the engine. A formula characterizing the total efficiency  $\eta$  of the waterjet installation is deduced. The effect of a great number of parameters on the value of  $\eta$  is demonstrated and, particularly, the effect of the mixing coefficient is discussed and illustrated. It is concluded that under actual conditions the mixing with outboard water can result in an increase of the pull by up to 1.5—2 times at speeds of up to 50 m/sec. By further increase of speed, the relative gain in pull decreases. Three illustr., 24 formulas, nine biblio. refs.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--GAS CHROMATOGRAPHIC DETERMINATION OF OXYETHYLENE AND OXYPROPYLENE  
GROUPS IN AN ETHYLENE OXIDE PROPYLENE OXIDE COPOLYMER -U-  
AUTHOR-(02)-MOKEYEVA, R.N., TSARFIN, YA.A.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 52-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS CHROMATOGRAPHY, ETHYLENE OXIDE, PROPYLENE OXIDE,  
COPOLYMER, PYROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1789

STEP NO--UR/0191/70/000/003/0052/0053

CIRC ACCESSION NO--AP0123586

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123586

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. OXYETHYLENE AND OXYPROPYLENE GROUPS IN THE TITLE COPOLYMER (I) WERE DETD. BY PYROLYSIS FOLLOWED BY GAS CHROMATOG. OF THE PYROLYSIS PRODUCTS, VIZ., ACH AND PRCHO. THE EXPTL. PROCEDURE WAS DESCRIBED. THE STD. DEVIATION DID NOT EXCEED 9.2PERCENT. THE METHOD PERMITTED ANAL. OF I SAMPLES CONTG. 5-60PERCENT CH SUB2 CH SUB2 O GROUPS.

UNCLASSIFIED

Acc. Nr:

AP0038926

Abstracting Service: 4-70 Ref. Code:  
CHEMICAL ABST.

UR0191

M

79718h Gas-chromatographic determination of dimethylformamide and dimethylacetamide in poly(m-phenyleneisophthalamide). Mokeeva, R. N.; Tsarfin, Ya. A. (USSR). *Plast. Massy* 1970, (11), 86-7 (Russ). A small amt. (0.050-0.2000 g) of poly(m-phenyleneisophthalamide) (I) was placed in a 10-ml conical flask and dissolved in 3-5 g N-methyl- $\alpha$ -pyrrolidinone (II) and 0.0050-0.0200 g HCONMe<sub>2</sub> or AcNMe<sub>2</sub>, and the soln. was passed through a Tsvet 1-64 chromatograph equipped with a flame-ionization detector. AcNMe<sub>2</sub> was used as internal std. in detn. of HCONMe<sub>2</sub>, and vice versa. AcNMe<sub>2</sub>, HCONMe<sub>2</sub>, and I were best sepd. on 20% poly(ethylene succinate) adsorbed on Chromosorb W at 120 column temp. The carrier gas (He), H<sub>2</sub>, and air velocities were 60, 42, and 203 ml/min, resp. The method was rapid (~50 min) and suitable for the detn. of HCONMe<sub>2</sub> and AcNMe<sub>2</sub> present in I in the range of 0.2-10%.

CKJR

E.B.

REEL/FRAME  
19740137

UDC 546.185

USSR

SHEVCHENKO, V. I., MOKHAMED EL DIK, PINCHUK, A. M., Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Phosphorylation of Benzylidenecyanoacetamides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 1949-1954

**Abstract:** Benzylidenecyanoacetamides  $\text{ArCH:C(CN)CONHX}$  react with phosphorus pentachloride at the amide and carbonyl groups as well as at the ethylene bond. The unsubstituted amides ( $\text{X=H}$ ) yield compounds of the type  $\text{ArCH:C(CN)CON:PCl}_3$  and  $\text{ArCH:C(CN)CCl}_2\text{N:PCl}_3$ . When exposed to air humidity or to a calculated amount of acetic acid,  $\text{ArCH:C(CN)CON:PCl}_3$  yields N-dichlorophosphorylbenzylidenecyanoacetamide, which can be reacted with  $\text{PCl}_5$  to give, most probably, 1,3-diaza-2-phosphacyclohexadienes-3,6. When  $\text{ArCH:C(CN)CON:PCl}_3$  is reacted with  $\text{PCl}_5$  the reaction occurs initially at the double bond followed by the amide and carbonyl groups yielding the compounds  $\text{ArCHClCCl(CN)CONHCH}_3$ ,  $\text{ArCHClCCl(CN)CCl:NCH}_3$ , and probably  $\text{ArCHClCCl(CN)CONH(CH}_3\text{)PCl}_2$ . The latter is converted to  $\text{ArCHClCCl}$

1/2

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USSR

SHEVCHENKO, V. I., et al, Zhurnal Obshchey Khimii, Vol 40, No 9,  
Sep 70, pp 1949-1954

(CN)CON(CH<sub>3</sub>)POCl<sub>2</sub> by reacting it with sulfur dioxide. The authors  
thank A. V. KIRSANOV for his advice and help in the work.

2/2

Steels

USSR

UDC 669.18.046.558.7

KALINNIKOV, Ye. S., MOKHIR, Ye. D., SERGEYEV, A. L., KHASIN, G. A. and VOINOV, S. G.

"Quality of Type ShKh15 Open Hearth Steel Refined with Synthetic Slag"

Moscow, Stal', No 1, Jan 73, pp 23-26.

Abstract: The content of nonmetallic inclusions and the macrostructure of type ShKh15 Steel, made according to the usual technology in a 20 ton electric furnace and according to a technology developed earlier in a 60 ton open hearth furnace is studied following treatment of the metal in the ladle with liquid synthetic slag and pouring into 2.7-4.9 t ingots, and also following several experimental treatments with variations of the mode of oxidation and deoxidation in the furnace and in the ladle with ingot weight 2.7 t. All types of SSh open hearth steel (except that poured into the largest ingot molds) satisfied all requirements and was equal in quality to the electric steel. The optimal results were produced using the SSh technology and using an altered version with tapping of the melt without adding the oxidizers (ores) and with the consumption of aluminum decreased to 200 g/t steel.

1/1

4

USSR

UDC 669.046.5

SHIRER, G. B., KOMEL'KOV, V. K., VOINOV, S. G., SHALIMOV, A. G., PEGOV, V. G.,  
MOLCHANOVA, A. A., TSIBUL'NIKOV, A. I., and MOKHIR, Ye. D.

"Refining of Ball Bearing Electrical and Martin Steels by Synthetic Lime-Alumina Slag with High Silica Content"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI'S). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 247-249

Translation of Abstract: Results are presented of the refining of ShKh15 steel melted in 100-ton electric furnaces using synthetic slag with high silica content in a ladle. With respect to sulfur content and the level of contamination by sulfide impurities, the obtained steel is similar to metal refined with conventional synthetic slag containing not more than 3% of silica, although the former is more contaminated with oxide and globular impurities. Data are presented on production testing of the described slag at a Martin plant, at which the quality of the 12Kh1MF and 20 K steels for pipes was found to be similar to a steel refined with the usual synthetic slag. The production cost of the slag with high silica content is given (It is approximately 30 rubles/ton cheaper than the ordinary slag). 3 tables.

1/1

USSR

UDC 539.1.074.3:535.853

KRAVCHENKO, N. G., ~~MOKHIR, YE. P.~~, TSIRLIN, YU. A.

"Inhomogeneity of the Photoelectric Multiplier Photocathode and the Resolution of a Scintillation Spectrometer"

Khar'kov, Monokristally, Stsintillyatory i Organicheskiye Lyumino-  
fory -- Sbornik (Monocrystals, Scintillators, and Organic Lumino-  
phors - Collection of Works), No 5, 1970, pp 193-198 (from Refera-  
tivnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 12,  
1970, Abstract 12.32.1559)

Translation: Present-day photomultipliers used in scintillation spectrometers possess a large (up to 50%) inhomogeneity of the photocathode sensitivity. If the light output of the crystal is unequal with respect to the area of the output window, this inhomogeneity makes an additional contribution to the resolution of the scintillation spectrometer. A study was made of the influence of the sensitivity inhomogeneity of the photocathode of photoelectric multiplier 49 upon the resolution of a scintillation spectrometer with an NaI (Tl) crystal with dimensions of 120x100 mm. To separate the contributions of the crystal, the photomul-  
1/2

USSR

KRAVCHENKO, N. G., et al, Monokristally, Stsintillyatory i  
Organicheskiye Lyuminofoxy -- Sbornik, No 5, 1970, pp 193-198

tiplier, and the photomultiplier inhomogeneity to spectrometer resolution, the method of homogeneous neutral filters and light guides was used. 2 figures, 1 table, 4 bibliographic entries.

2/2

- 114 -

USSR

UDC 577.3

MEYSEL', M. N., MOKHNACH, V. O., VAKINA, I. P., SELIVERSTOVA, L. A., BORODINA, V. M., and ROMANOVA, L. L., Institute of Microbiology, Academy of Sciences USSR, and Botanical Institute imeni V. L. Komarov, Academy of Sciences USSR

"The Mechanism of the Antimicrobial Action of Biologically Active Iodine Compounds"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 6, Nov/Dec 71, pp 819-829

Abstract: Bacteriological, phase-contrast, fluorescence, and electron microscope investigations revealed that the antimicrobial activity of iodine compounds is due to the positive monovalent iodide ion ( $I^+$ ) and not to molecular iodine ( $I_2$ ). The most active substances, such as iodine-potassium iodide and its compound with polyvinyl alcohol (iodinol), as well as oxidized hydroiodic acid and its compound with polyvinyl alcohol, readily penetrate yeast and bacterial cells and by combining with oxidizing the mitochondria, intracellular polysaccharides, and membrane lipoproteins, suppress and eventually completely inhibit the respiration of the cells.

1/1

- 43 -

USSR

UDC 537.533.331

LYUBCHIK, Ya. G., ~~MOKHNATKIN, A. V.~~, Candidate of Sciences, CHENTSOV, Yu. V.,  
Doctor of Sciences and YAVOR, S. Ya.

"Electron-Optical System of Nonaxisymmetrical Elements for Building a  
Microprobe"

Leningrad, Optiko-mekhanicheskaya promyshlennost' No 11, Nov 71, pp 7-9

Abstract: The use of nonaxisymmetrical elements such as quadrupoles and octupoles for correction of spherical aberration in microprobe systems is suggested. A model of a triplet consisting of four similar five-electrode electrostatic quadrupole-octupole lenses is described. The small excitation regimes and a part of strong excitation regimes of quadrupoles (up to  $V = 3-3.5$  kv) were experimentally investigated at magnification ratio not higher than  $1/3$ . Coefficients of linear magnification were determined using a fine mesh screen as an electron-optical object. The excitation values and coefficients of linear magnification obtained experimentally and by computation on a BESM-4 computer, presented in graphs, show good agreement.

1/1

USSR

UDC 621.355.8.035.2

KUDRYASHOVA, G. M., MOKHNATIKIN, V. M., LOMOV, M. I., and KOLOSOV, A. S.

"Concerning the Problem of the Structure of a Two-Phase Flow in a Densely Packed Energizer Stack"

V sb. Issled. v obl. khim. istochnikov toka (Research in the Field of Chemical Sources of Current -- collection of works), vyp 2, Saratov, Saratov. un-t, 1971, pp 58-61 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18L179)

Translation: Analysis of the distribution of the gas-liquid mixture between close-stacked plates of alkaline energizers shows that when materials of the nylon type are used as the separation between electrodes, continuous liquid and gas phases exist simultaneously in the interelectrode gap.  
V. S. Levinson.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CONTINUOUS PROCESS FOR COOKING AND PRODUCING LEAD CRYSTAL TABLEWARE  
-U-  
AUTHOR--(05)-MOKHNIN, N.F., FIGUROVSKIY, I.A., SAVONICHEV, G.V., ZUBANOV,  
V.A., YUDIN, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--STEKLO KERAM. 1970, 27(2), 8-10  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--LEAD, METAL CRYSTAL, GLASS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1991 STEP NO--UR/0072/70/027/002/0008/0010  
CIRC ACCESSION NO--AP0118950

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118950

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COM. TECHNOLOGY FOR CONTINUOUS PRODUCTION OF TABLEWARE ARTICLES MADE FROM LEAD CRYSTAL WAS WORKED OUT FOR THE 1ST TIME. A BRIEF HISTORY OF THE PROBLEM AT HAND IS PRESENTED. AN ATTEMPT WAS ALSO MADE TO OBTAIN THE NECESSARY DATA FOR DESIGNING FUTURE FURNACES WITH A LARGER CAPACITY. THE BOUNDARY CONDITIONS WERE DETD. FOR THE CASE OF HEATING THIN AND MASSIVE BODIES SIMULTANEOUSLY BY RADIATION AND CONVECTION. THE COMPLEX HEAT TRANSFER IN THE UPPER CHAMBER WAS ALSO INVESTIGATED. PB OXIDE LOOSES FROM THE MELT ARE DECREASED BY USING AIR PREHEATED AND SATD. BY VOLATILE COMPONENTS IN A REGENERATIVE HEAT EXCHANGER. THIS METHOD ALSO IMPROVES THE HEAT TRANSFER IN THE FURNACE. FURTHERMORE, SUCH A PRODUCTION SETUP IS MUCH MORE ECONOMICAL. FACILITY: UPR. VLADIMIRSTEKO, VALIDIMIR, USSR.

UNCLASSIFIED

1/2 010

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--KINETICS OF THE DISSOLUTION OF CALCIUM TUNGSTATE IN OXALATE ACID  
SOLUTIONS -U-  
AUTHOR--(04)--POTASHNIKOV, YU.M., GAMOLSKIY, A.M., MOKHOSDYEV, M.V.,  
KOZLOVA, F.M.  
COUNTRY OF INFO--USSR

SOURCE--Zf. NEORG. KHIM. 1970, 15(2), 502-8

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION KINETICS, AQUEOUS SOLUTION, CALCIUM  
CHLORIDE, SOLUBILITY, TUNGSTATE, OXALATE

CENTRL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/1706

STEP NO--UR/0078/70/015/002/0502/0508

CIRC ACCESSION NO--AP0115535

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115535

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CAC SUB2 O SUB4.H SUB2 O FORMED WHEN CA WO SUB4.H SUB2 O WAS DISSOLVED IN AN AQ. SOLN. OF H SUB3 C SUB2 O SUB4 AT 20-60CEGrees. RATE OF CAWO SUB4.H SUB2 O DISSOLN. IS INDEPENDENT OF MIXING RATE AND IS LINEARLY PROPORTIONAL TO H SUB2 C SUB2 O SUB4 CONCN. IN THIS PROCESS, H SUB2 C SUB2 O SUB4 PERFORMS 2 FUNCTIONS, 1ST IT CAUSES SEPN. OF 2 SOLIDS, CAC SUB2 O SUB4 AND H SUB2 WO SUB4, AND 2ND IT REACTS WITH H SUB2 WO SUB4 TO GIVE H SUB2 (WO SUB3 (C SUB2 O SUB4)). IN THE PRESENCE OF HCL, CACL SUB2 FORMS ALONG WITH H SUB2 (WO SUB3 (C SUB2 O SUB4)). FACILITY: DONEYS. COS. UNIV., DONETSK, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--REACTION OF MOLYBDENUM TRIOXIDE WITH ALKALI METAL SULFATES IN MELTS  
-U-  
AUTHOR--(03)-KOKOT, I.F., MOKHOSOEYEV, M.V., KISEL, N.G.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., TSVET. MET. 1970, 13(1), 87-90.  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--X RAY ANALYSIS, PHASE DIAGRAM, METAL COMPLEX COMPOUND,  
EUTECTIC MIXTURE, MOLYBDENUM OXIDE, LITHIUM COMPOUND, POTASSIUM  
COMPOUND, SULFATE, SODIUM SULFATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/1511

STEP NO--0149/70/013/001/0087/0090

CIRC ACCESSION NO--AT0130440

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0130440

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY DTA AND X RAY ANAL. THE PHASE  
DIAGRAMS WERE DETD. FOR LI SUB2 SO SUB4NEGATIVE MOO SUB3 NA SUB2 SO  
SUB4 MOO SUB3, AND K SUB2 SO SUB4 MOO SUB3. LI SUB2 SO SUB4 MOO SUB3  
AND NA SUB2 SO SUB4 MOO SUB3 FORM SIMPLE EUTECTIC SYSTEMS AND K SUB2 SO  
SUB4 MOO SUB3 FORMS A COMPLEX COMPN. (K SUB2 MOO SUB3) MOO SUB3 SO SUB4.  
FACILITY: DONETS. GOS. UNIV., DONETSK, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--DOUBLE MOLYBDATES AND TUNGSTATES OF RARE EARTH ELEMENTS WITH SODIUM

-U-  
AUTHOR--(04)-GOLUB, A.M., AGANYAZOV, K.S., KISEL, N.G., MOKHOSOV, M.V.

COUNTRY OF INFO--USSR

SOURCE--IZV, AKAD. NAUK SSSR, NEORG. AMER. 1970, 6(1), 170-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLYBDATE, TUNGSTATE, RARE EARTH ELEMENT, SODIUM, X RAY  
ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1984/0166

STEP NO--UR/0363/70/006/001/0170/0172

CIRC ACCESSION NO--AP0054962

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 018

CIRC ACCESSION NO--AP0054962

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IN ORDER TO CONFIRM THE ESTABLISHMENT OF FULL EQUIL. IN THE LN(NO SUB3) SUB3-NA SUB2 MOO SUB4-H SUB2 O SYSTEM, THE ISOMOLAR SERIES OF THE MIXTS. OVER A PERIOD OF 1 AND 2 WEEKS, AS WELL AS OVER 1 AND 3 MONTHS, FROM THE INSTANT OF THEIR PREPN. WERE STUDIED CONDUCTIONMETRICALLY AND POTENTIOMETRICALLY. THE MIN. IN ELEC. COND. CORRESPONDS TO MIXTS. WITH THE RATIO (LN(NO SUB3) SUB3): (NA SUB2 MOO SUB4) EQUALS 1:2. THIS ATTESTS TO THE FORMATION OF DOUBLE MOLYBDATES OF RARE EARTH METALS. INVESTIGATION OF THE LN(NO SUB3) SUB3-NA SUB2 WO SUB4-H SUB2 O SYSTEM INDICATES THE FORMATION OF SIMPLE TUNGSTATES OF RARE EARTH METALS. X RAY ANAL. OF DOUBLE TUNGSTATES SHOWS THAT THEY BEHAVE ANALOGOUSLY TO DOUBLE MOLYBDATES. AN ENDOTHERMAL EFFECT AT 180-200DEGREES CORRESPONDS TO THE LOSS OF WATER. THE EXOTHERMAL EFFECT AT 400-480DEGREES CORRESPONDS TO THE CRYSTN. OF THE COMPOS. NALN(WO SUB4) SUB2 TIMES 0.5H SUB2 O, AND THE EXOTHERMAL EFFECT AT 560-575DEGREES CORRESPONDS TO THE CRYSTN. OF NALN(WO SUB4) SUB2.

UNCLASSIFIED

Acc. Nr.

AP0034144

Abstracting Service:  
CHEMICAL ABST. 4-70

Ref. Code

UR 0078

M

74275b Reaction of a double molybdate of lanthanum and an alkali metal with alkali metal molybdates in melts. Makhosoev, M. V.; Kokot, I. F.; Lutsyk, V. I.; Kononenko, I. S. (USSR). Zh. Neorg. Khim. 1970, 15(1), 271-5 (Russ). Phase diagrams of the system  $MLa(MoO_4)_2-M'_2MoO_4$  (where  $M = M' = Li, Na, K, Rb, Cs$ ) are constructed. Systems with Li and Cs salts are simple eutectic systems, with eutectic contg. 90 and 0% mole %  $M'_2MoO_4$ , m. 660 and 740°, resp. The remaining systems form the following compds.: incongruently, m. 680°  $Na_2La(MoO_4)_4$ , and congruently m. 800 and 835°  $K_2La(MoO_4)_4$  and  $Rb_2La(MoO_4)_4$ , resp. HMJR

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18 di

REEL/FRAME  
19710791

USSR

UDC: 53.07/.08+53.001.5

YENDOVITSKIY, V. S., KIMEL', L. R., MOKHOV, N. V.

"An Analytical Method of Calculating a Nucleon-Meson Cascade at High Energies of the Order of  $1-10^3$  GeV"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), vyp. 12, Moscow, Atomizdat, 1971, pp 15-23 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A732)

Translation: A numerical method is proposed for calculating nucleon-meson cascades with regard to scattering in inelastic hadron-nucleus interactions. The method gives the function of spectral-angular distributions of particles in a cascade initiated in shielding materials by broad beams of high-energy hadrons in the small-angle approximation.

1/1

USSR

UDC 681.325.3

SOKOLOV, G. G., MOKHOV, V. A., and BURKIN, N. I.

"A High-Speed Triode Analog-Digital Converter"

Tr. Leningr. In-t Aviats. Priborostr. (Works of Leningrad Institute for Building Aviation Machines), No 69, 1971, pp 81-85 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B377, by B. K.)

Translation: A three-bit analog-digital converter having a conversion cycle length of 0.5 microseconds is described. The converter is constructed according to a bit-by-bit coding scheme. Comparison of the voltage being measured and a standard voltage is carried out with the help of tunnel diodes, which control transistorized keys. Diagrams of an analog-digital converter are given for the case of conversion of analog signals having positive and negative polarity. The input resistance of the converter is equal to 75 ohms; the maximum voltage of the input signal is 1 volt; the working range of changes in temperature is from  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ . 2 illustrations, 4 titles in bibliography.

1/1

- 44 -

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ELECTROMAGNETIC PROCESSES IN THE AUTOEXCITATION SYSTEM OF  
GENERATORS WITH MAGNETIC AMPLIFIERS -U-  
AUTHOR--(03)-ZDROK, A.G., SALYUTIN, A.A., MOKHOV, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCON, ELEKTRICHESTVO, NO 3, 1970, PP 47-52  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR., ENERGY  
CONVERSION (NON-PROPULSIVE)  
TOPIC TAGS--ELECTRIC GENERATOR, ELECTROMAGNETIC EFFECT, MAGNETIC AMPLIFIER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3006/1748 STEP NO--UR/0105/70/020/003/0047/0052  
CIRC ACCESSION NO--AP0135319  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135319

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH DIFFERENT SELF EXCITATION SYSTEMS OF THREE PHASE GENERATORS WITH A SINGLE PHASE AND TWO PHASE ASSYMETRICAL VOLTAGE SUPPLY. ELECTROMAGNETIC PROCESSES IN THE SELF EXCITATION CIRCUIT WITH A MEDIAN POINT UNDER CONDITIONS OF ITS SUPPLY WITH ASSYMETRIC TWO PHASE VOLTAGE OF THE SOURCE IS DISCUSSED. THE ANALYSIS WAS CARRIED OUT WITH USE OF APPROXIMATION OF THE MAGNETIZATION CURVE OF THE CORES OF MAGNETIC AMPLIFIER BY TWO SLANTING LINES IS DISCUSSED. ANALYTICAL EXPRESSIONS WERE DERIVED OF VOLTAGES AND CURRENTS FOR COMMUTATION AND EXTRA COMMUTATION OPERATION OF VALVES WHICH MADE IT POSSIBLE TO DETERMINE CHARACTERISTICS OF THE CONTROL OF MAGNETIC AMPLIFIER. RESULTS OF THE ANALYSIS HAVE BEEN CONFIRMED BY EXPERIMENTAL INVESTIGATIONS.

UNCLASSIFIED

1/2 028  
TITLE--LINEAR LUMINESCENCE OF ALUMINUM DOPED SILICON CARBIDE -U-  
AUTHOR--(03)--SOKOLOV, V.I., MAKAROV, V.V., MOKHOV, YE.N.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(1), 285-6  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS  
TOPIC TAGS--LUMINESCENCE SPECTRUM, SILICON CARBIDE, CRYSTAL, DOPED ALLOY,  
ALUMINUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1984/0223

STEP NO--UR/0181/70/012/001/0285/0286

SECTION NO--AP0055019

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 028

CIRC ACCESSION NO--AP0055019

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. LUMINESCENCE SPECTRA WERE INVESTIGATED BY USING A CAMERA OF 270 MM. FOR SMALL DS. OF ELECTRONIC CURRENT, WEAK LINES WERE OBSO. CHANGING INTO A CONTINUUM. WITH INCREASING C. D. TOTAL INTENSITY OF THE LUMINESCENCE INCREASES AND REDISTRIBUTION TAKES PLACE OF THE RELATIVE INTENSITIES OF THE MAX. WHICH INCREASES IN COMPARISON WITH THE BACKGROUND. PHOTOMICROGRAPHS ARE GIVEN OF THE SHORT WAVELENGTH PART OF THE LUMINESCENCE SPECTRUM OF CRYSTALS OF THE 6H MODIFICATION OF SIC AT MAX. D. OF EXCITATION AND AT 80DEGREESK.

UNCLASSIFIED

MOKHOVA, Ye. N.

S0: JPRS 53448  
24 JUNE 71

UFG 612.06-06:612.275.1.017.2

CITULAE NUTRITION DURING HIGH-ALTITUDE ADAPTATION OF RATS

Article by V. I. Redukhova and Ye. N. Mokhova; Moscow, Kossicheskaya Bioblogia i Medicina, Russian, vol. 7, no. 2, 1971, pp. 31-38, submitted for publication 20 December 1969.

Data on the existence of changes in the oxidative and oxidative phosphorylation systems during high-altitude adaptation are contradictory. Z. I. Bertshova (1968, 1969) cites information on the appearance of difference in tissue respiration and the activity of cytochrome-C-oxidase with a decrease in oxygen partial pressure to 11 mm Hg. According to other data, changes in the activity of cytochrome-C-oxidase and succinate dehydrogenase are not observed during adaptation to an oxygen inadequacy in the first generations (Ye. M. Krepis, et al.; Ye. Yu. Chelnyayeva and G. P. Degtyareva). Ziegler investigated the parameters of oxidation and oxidative phosphorylation of rat liver homogenates after adaptation in a pressure chamber at 295 and 350 mm Hg for two weeks. After adaptation at 295 mm Hg he did not detect significant changes in the investigated parameters. Marked changes were detected after adaptation at 350 mm Hg, but an adaptation system during high-level adaptation were small changes in the respiratory system during high-level adaptation were registered in hepatic and cardiac mitochondria (Strickland, et al.).

There has been relatively little study of the effect of high-altitude adaptation on the oxidation and oxidative phosphorylation of cerebral mitochondria (the brain being one of the organs most sensitive to hypoxia). Judging from the results of investigations by Japanese authors (Ozawa, et al., 1969), cerebral mitochondria are more sensitive to hypoxia than hepatic and cardiac mitochondria; the decrease in respiratory control of cerebral mitochondria observed after anoxia is related, in particular, to an accumulation of fatty acids. These authors also demonstrated that when mitochondria are washed from the brain the  $K_m$  is almost completely eliminated; however, such a result probably explains the need for making high  $K^+$  concentrations (40 mM or more) to the medium for incubating cerebral mitochondria for obtaining a high respiratory control and high oxidation rates.

*space physiology*

UDC 543.42:574/578

USSR

BORISOV, A. Yu., LARIONOV, V. N., and MOKHOVA, Ye. N., Interfaculty Laboratory  
of Bio-Organic Chemistry, Moscow State University named M. V. Lomonosov

"Differential Spectrophotometers Used in Biology"

Moscow, Biologicheskiye Nauki, No 8, 1970, pp 118-128

Abstract: A brief account is presented of the history and uses of differential spectrophotometers. The three main types (single-beam, two wave, double-beam) are described, and their technical characteristics are outlined (optical, mechanical, and electronic components; modulation frequency; automatic regulation of intensity; preliminary limitation of frequency bands). The principal features of the spectrophotometers designed by Chande, Klingenberg and Bucher, Duysens, Kok, Lundegard, Witt, and the authors of the article are noted. The parameters and characteristics most appropriate for investigations of cellular respiration, photosynthesis, and oxidative and photosynthetic phosphorylation are summarized.

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Stress, Strain, and Deformation

USSR

UDC 620.178.14

KASHCHEYEV, V. N. and MOKIN, A. M., Siberian Physico-Technical Institute  
imeni V. D. Kuznetsov at Tomsk University

"The Mechanism for Onset of a Crack on the Surface of a Plastic Metal"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 6, 1971, pp 95-101

Abstract: A scratching cone may be studied as a cutting tool having a negative forward angle. The emergence of the conical indenter toward the surface of the metal during scratching at a constant normal load may be due to the hardening of the deformed metal and the onset of the force of friction having a component that is directed counter to the vertical force of the normal load. The authors state that allowing for the forces of friction which act on the indenter as a result of the flow of metal to the loading and chipping in the direction from down upward may formally explain the slight emergence of the point of the indenter toward the surface of the scratched metal. The decrease in the support area is compensated by hardening of the metal as a result of plastic deformation and the existence of a certain component of the force of friction which is directed upward along the axis of the cone. The tendency of the cone to leave the metal to the surface in the presence of a tangential motive force is due to the same cause as the onset of radial compressive

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USSR

KASHCHAYEV, V. N. and MOKIN, A. M., Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 6, 1971, pp 95-101

forces of cutting for cutting tools having negative forward angles of cutting rigidly affixed in the force-measuring device on the support of the machinery. The article contains 4 illustrations and 16 bibliographic entries.

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USSR

UDC: [621.313.32.011.3/045.7:536.483]001.24

BERTINOV, A. I., MIRONOV, O. M., ~~MOKIN, V. S.~~ Moscow

"Coefficients of Induction of a Cryogenic Synchronous Machine With Damper System"

Moscow, Izv. AN SSSR: Energetika i Transport, No 4, Jul/Aug 72, pp 56-60

Abstract: The self-inductance of a damper system in a cryogenic synchronous machine without magnetic circuit is calculated. The mutual coefficients of the induction of damper and coils are determined and curves are presented for the mutual inductances as functions of the relative geometric dimensions of the machine. It is found that the self-inductance of the damper and its mutual inductance with the coils are independent of the absolute values of machine diameters. As the thickness of a winding increases, its mutual inductance with the damper decreases. As the number of poles of the machine is increased, the self-inductance of the damper increases and its mutual inductance with the windings decreases. With a variation in the ratio of outside to inside diameter of the damper wall between 1 and 1.1, its self-inductance varies little, and can therefore be taken as constant in designing two-pole and four-pole machines.

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USSR

UDC: 669.295.004.2

MOKINA, Ye. P., PLAKHINA, L. N., TASYBAYEVA, N. B.

"Use of Industrially Contaminated Waste Water in Recycle Water Supply of the Ust'-Kamenogorsk Titanium-Magnesium Combine"

Tr. N.-I. i Proyekt. In-t po Obogashch. Rud. Tsvet. Met. "Kazmekhanobr" [Works of "Kazmekhanobr" Scientific Research and Planning Institute for Dressing of Nonferrous Metal Ores], 1972, Collection 9, pp 150-154 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G216, by the authors).

Translation: Conditions of formation of the industrial wastes of a combine are studied. A plan is suggested for utilization of waste waters in a recycled water supply. The plan calls for two versions of recycling of water: a) with purification of all waste waters in existing purification structures; b) recycling of water with utilization of valuable components and complete purification of waste waters in additional equipment. It is suggested that measures be taken to prevent possible accumulation of salts in the recycled water supply system. 2 figures.

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USSR

UDO 621.315.592:546.28

MOKIYEVSKIY, V.A., ERLIKH, R.N.

"Mechanism Of Formation Of Packing Defects In Autoepitaxial Layers Of Silicon"

Elektron.tekhnika. Nauch.-tekhn.sb. Poluprovodn.pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1971, Issue 1(58), pp 58-61 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B80)

Translation: A study was made of the effect of an oxide on the formation of packing defects in autoepitaxial layers of Si. A mechanism is suggested which accounts for the appearance of twin islands--nuclei in the autoepitaxial layers, which are the reason for the formation of packing defects because of epitaxial coalescence of Si with crystallographic films of oxides. 11 ref. Summary.

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USSR

UDC: 681.32.001

POPOV, V. A., MOKLYAK, N. G., SKIBENKO, I. T., SYCHEV, A. V., Khar'kov  
Aviation Institute

"On a Method of Optimum Synthesis of Universal Logic Modules"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 11, 1973, pp 58-61

Abstract: Previous papers have established a number of properties inherent in Boolean functions with high logical effectiveness, defined as the number of classes or types of subfunctions obtained by adjustments, and have also suggested a method of constructing universal logic modules which maximize the number of subfunctions. This paper proposes a group theory approach to synthesizing optimum universal logic modules which enables purposeful sorting of Boolean functions rather than trial and error and also considerably reduces the number of external adjustments which give identical subfunctions. The proposed method was used to develop an algorithm for synthesizing optimum universal logic modules. The algorithm is written in ALGOL-60 and realized on the BESM-4 computer. The circuit of one of the resultant modules is given. The method can be generalized to  $l$ -valued logic functions.

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UDC 577.4

USSR

POPOV, V. A., SKIBENKO, I. T., and MOKLYAK, N. G.

"A List of Types of Systems of Indeterminate Boolean Functions"

V sb. Radioelektronika letatel'n. apparatov (Radioelectronics of Flying Apparatus - Collection of Works), No 5, Khar'kov, 1973, pp 152 - 158  
(from RZh Matematika No 12, 1973, abstract No 12 V465)

Translation: This article lists the types of systems of indeterminate Boolean functions with respect to groups of variable transpositions, inversions, and transformations of a single type. The case in which the groups act both on the area of determinacy and in the area of significance of the system function is considered. The numbers of types of systems for  $n, m \leq 3$  are obtained. It is found that the number of these types when  $n = m = 3$  exceeds  $10^8$ . Cyclic indices of the groups considered are found but are not given in the article.

Abstract by A. Sapozhenko.

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USSR

UDC 519.62-507

POFOV, V. A., MOKLYAK, N. G., and SKIBENKO, I. T.

"Enumeration of Types of Ternary Switching-Function Systems"

Riga, Avtomatika i Vychislitel'naya Tekhnika, No 4, Jul-Aug 73, No. Dep 5386-73 dated 9 Jan 73, received by editors 23 Nov (27 Jan) 72, p 36

Translation: The article considers systems of a ternary switching functions of  $n$  variables (SF) to describe ternary  $(n, m)$ -poles. A determination is made of the number of equivalence classes (types) of  $(n, m)$ -poles relative to five different groups inducing a given equivalence: 1) symmetrical group  $S_n^{(3)}$  of order  $n!$  to the  $3^n$  power; 2) negation group  $D_3^n$  of order  $2^n$  to the  $3^n$  power; 3) cyclic-negation group  $T_3^n$  of order  $3^n$  to the  $3^n$  power; 4) group  $H_3^n$ , which is the semidirect product of groups  $S_n^{(3)}$  and  $D_3^n$ ; 5) group  $G_3^n$ , which is the semidirect product of  $S_n^{(3)}$  and  $T_3^n$ . The authors consider the case in which any of these groups acts on the domains of definition of an SF system; and another group, on the domains of values of the functions of the system. Here use is made of theorems of Pólya and de Bruyn which employ the cycle indices of permutation groups. To find the cycle indices of the groups under consideration, an effective algorithm, written in ALGOL-60 and realized on a BESM-4 digital computer, is offered. The authors present the cycle indices of groups  $S_n^{(3)}$ ,  
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USSR

POPOV, V. A., et al., Avtomatika i Vychislitel'naya Tekhnika, No 4, Jul-Aug 73,  
Dep 5386-73 dated 9 Jan 73, received by editors 23 Nov (27 Jan 72, p 36

$H_3^n$ , and  $G_3^n$  for  $n \leq 6$ , as well as results of calculations of types of  $(n,m)$ -  
poles for  $n, m \leq 3$ . Twelve tables. Bibliography with seven titles.

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IPK 5 59208  
6-73

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MOKRITSKIY, V.A.

XIV-14. DEFECTS OF LAYERS DURING EPITAXY FROM A SOLUTION IN A MELT

[Article by V. A. Zavadskiy, A. I. Kiselev, V. I. Kuznetsov, V. A. Mikhlin, V. A. Odesskiy, I. I. Stepanov, po Protsessam Rosta i Sintezu Poluprovodnikov Kristalliny i Plazma, Moscow, 12-13 June 1972, p. 206]

The structural perfection of monocrystalline layers of semiconducting materials is one of the basic properties determining their quality and further use in the manufacture of instruments.

In this paper a study was made of the formation and the types of structural defects in the monocrystalline layers of germanium, gallium arsenide and phosphide obtained from a solution in melts of different media depending on the conditions of obtaining them.

It was demonstrated that the structural perfection of the monocrystalline layers depend on the state of the substrate surface before the epitaxy process, the selection of the metal solvent and the nature of variation of the thermal field in the crystallization zone. Some causes of the variation of the defect distribution with respect to thickness of the epitaxial layer were discovered.

USSR

UDC 536.421.4+536.421.1

KUZNETSOV, V. I., MOKRITSKIY, V. A. BUKAYEV, V. A., and PESOTSKIY, G. S.

"Investigating Epitaxy Conditions of Gallium Arsenide"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 71-79 (from RZh-Fizika, No. 9, 1971, Abstract No. 9E397)

Translation: The peculiarities of the oriented growth of GaAs layers from a solution of As in a Ga melt on a GaAs substrate are investigated. A method is developed for obtaining early stages of the epitaxial layers from the solution-melt. An optimal method is selected for processing the substrate surfaces as well as for conditions of epitaxy of the layers with sufficiently perfect crystalline structures and good electrophysical characteristics.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PHOTOSYNTHETIC FUNCTION OF POTATO LEAVES IN AUTONOMOUS AND SYSTEM  
CONDITIONS -U-  
AUTHOR--(02)-MOKRONOSOV, A.T., IVANOVA, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 2, PP 265-273  
DATE PUBLISHED-----70  
SUBJECT AREAS--AGRICULTURE  
TOPIC TAGS--PHOTOSYNTHESIS, PLANT PHYSIOLOGY, METABOLISM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1982/1585 STEP NO--UR/0326/70/017/002/0265/0273  
CIRC ACCESSION NO--APO052784  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0052784

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF PHOTOSYNTHETIC METABOLISM BY THE C PRIME14 O SUB2 "GULP" TECHNIQUE WITH SUBSEQUENT EXPOSURE IN LIGHT IN ORDINARY ATMOSPHERE AND ALSO BY THE TECHNIQUE OF INCREASING EXPOSURE OF THE LEAF IN C PRIME14 O SUB2 WAS INVESTIGATED IN POTATO LEAVES UNDETACHED FROM THE PLANT ("LEAF IN THE SYSTEM") OR DETACHED FROM THE PLANT ("AUTONOMOUS LEAF") DIRECTLY BEFORE THE EXPERIMENT, OR A DAY BEFORE. WATER CONDITIONS IN THE DETACHED LEAVES WERE CLOSE TO THOSE EXISTING IN THE CONTROL PLANTS. SIGNIFICANT DIFFERENCES IN THE KINETIC CHARACTERISTICS OF PHOTOSYNTHETIC METABOLISM IN DETACHED AND UNDETACHED LEAVES WERE OBSERVED EVEN WHEN THE CO SUB2 FIXATION RATES WERE ABOUT THE SAME. THE CARBOHYDRATE CHANNEL OF PHOTOSYNTHESIS IS INHIBITED WHEN THE LEAVES ARE CUT FROM 3-10 AND 55-65 DAY OLD PLANTS AND IT IS GREATER IN 15-55 DAY OLD PLANTS. TRANSFORMATION OF PHOSPHOHEXOSE INTO SUCROSE IS ACCELERATED DIRECTLY AFTER DETACHMENT, AND AFTER A DAY STARCH SYNTHESIS IS PREDOMINANT, PARTICULARLY IN OLD PLANTS. DETACHMENT OF THE LEAVE APPRECIABLY LOWERS INCORPORATION OF C PRIME14 INTO GLYCERATE AND ACCELERATES THE FORMATION OF SERINE AND GLYCINE. THE VARIATIONS IN PHOTOSYNTHESIS IMMEDIATELY AFTER DETACHMENT REFLECT TRANSITION PHENOMENA, AND AFTER A DAY, THE STATE OF THE PHOTOSYNTHETIC METABOLISM UNDER AUTONOMOUS CONDITIONS WHEN THE SYSTEM OF COOPERATIVE COUPLING BETWEEN THE LEAF AND WHOLE PLANT IS REMOVED.

UNCLASSIFIED

USSR

UDC 613.646

(2)

SHLEYFMAN, F. M., ZHIRNOVA, G. Ye., ZELENTSOVA, S. P., MARCHENKO, TASHKER, I. D.  
and MOKROTOVAROVA, G. N., Kiev Institute of Industrial Hygiene and Occupational  
Diseases

"Hygienic Assessment of the Effects of Exposure to Heat"

Moscow, Gigiyena Truda i Professional'nyye Zabollevaniya, No 3, 1973, pp 12-15

Abstract: Rabbits and rats exposed to infrared radiation at the rate of  $\text{kcal}/\text{m}^2$  /hour for varying lengths of time exhibited changes in body weight, behavior, immunological reactivity (decrease in antibody titers and phagocytic activity of leukocytes), hormonal activity, tissue respiration in the liver and skeletal muscles, oxidative phosphorylation, etc. The magnitude of the changes varied with the duration and nature of the exposure (continuous or intermittent), intensity of radiation, relationship between time of irradiation and rest periods, etc. Infrared radiation also brought about changes in humans. The heart rate, blood pressure, body temperature, etc. were affected, the degree varying mainly with the intensity and duration of exposure, and the length of the interval between exposures.

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USSR

UDC 619:616.988.21-07

MOKROUSOVA, A. V., and TITLOVA, Z. I., Veterinarians, Republic Veterinary Laboratory, Ministry of Agriculture, Kirgiz SSR

"Rapid Bioassay for Investigation of Rabies"

Moscow, Veterinariya, No 12, 1971, p 99

Abstract: The fluorescent antibody method has been used in conjunction with a bioassay on baby white rats for early diagnosis of rabies. A hypothetical diagnosis is established in a matter of a few hours. Then, instead of waiting 14-17-20 days for final results, seven white rats are inoculated with the substance taken from the specimen. Six days later smears of rat brain tissue are conjugated with fluorescent antirabies gamma-globulin. In positive cases a large number of specific bright-shining granules is observed through the fluorescence microscope. On the 14th-20th day these findings are confirmed when clinical symptoms are observed in other baby white rats.

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USSR

UDC: 669.017:548.73

ALESHINA, L. A., VRUBLEVSKAYA, E. L., MOKROV, A. P., RYKOVA, L. L.,  
SHIVRIN, O. N., RABINOVICH, Ye. M., Tula

"Temperature Dependence of the Process of Formation of a Solid Solution Upon  
Sintering of Tungsten-Molybdenum Powder Pressings"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of  
Materials Processing], No 6, Nov-Dec 73, pp 111-117.

Abstract: This article is primarily dedicated to the study of the temperature dependence of sintering and its influence on the formation of a tungsten-molybdenum solid solution. The minimum holding time is established for various temperature modes of sintering. Free molybdenum disappears almost completely after minimum holding (15 minutes) at 1300-2200° C, but a significant quantity of almost pure tungsten is still present. As sintering time and temperature are increased, this W gradually goes over into the solid solution. The effective activation energy of the process is 64,000 cal/mol for the 1300-1600° interval and 76,000 cal/mol for the 1600-1800° interval. The solid solution did not achieve high homogeneity at any of the temperature-time modes used. This was particularly true of the alloy containing 50 wt.% Mo +

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